6.1/6.2 B Word Problem WS Name _____ Per____

1. A 20 ft. telephone pole was hit by a car and is now leaning $10^{o}$ from vertical. The guy wire (the metal line that connects the top of the pole to the ground) is attached to the ground 10 feet from the base of the pole. How long is the guy wire when the pole is vertical? How far was it pulled out of the ground after the accident?

2. Merlin and Arthur are standing 1000 feet apart fighting in an epic battle. They both look up and see the dragon in the air coming to their aide. Merlin looks up at an angle of elevation of $43^{o}$ and Arthur looks up at an angle of elevation of $24^{o}$. What is the distance from Merlin to the dragon? What is the distance from Arthur to the dragon? What is the dragon's altitude?

3. Two houses are on opposite sides of a creek, which runs east to west. A surveyor can see both houses from a point down the creek. The angle at which the surveyor sees both houses is $80^{o}$ and he is due east 200 yd. from house A. The bearing from house A to house B is $N50^{o}E$. What is the distance between the houses?

4. Two naval bases receive a distress call from a boat out at sea. Station 1 has a bearing of $N35^{o}W$ to the ship and station 2 has a bearing of $N23^{o}E$. Station 1 is due east of station 2 and the stations are 15 miles apart. Which station should send out a rescue boat? Why?

5. The famous Leaning Tower of Pisa was originally 184.5 feet high. At a distance of 123 feet from the base of the tower, the angle of elevation to the top of the tower is found to be $60^0$. Find the angle the tower is now making with the ground. Also, find the new height of the tower.

6. Pat needs to determine the height of a tree before cutting it down to be sure it will not fall on a nearby fence. The angle of elevation of the tree from a position on flat path from the tree is $30^0$, and from a second position 10 feet farther along this path it is $20^0$. The fence is 8 feet away from the tree. Will the tree hit the fence? Why?

7. An airplane files from Ft. Myers due east to Sarasota, a distance of 150 miles and then turns at a bearing of $N40^0E$ and flies to Orlando, a distance of 100 miles. How far is it from Ft Myers to Orlando? What bearing should the pilot take to return to Ft. Myers from Orlando?

8. Make your own word problem. Show all calculations and final answer. You can choose to give the picture or make the person draw their own. Don't just copy one from the book.